

## EDITORIAL

# Dual pathology? Reviewing the conceptualization of comorbidity in addictions

## ¿Patología dual? Revisando la conceptualización de la comorbilidad en adicciones

SERGIO FERNÁNDEZ-ARTAMENDI, PhD<sup>\*</sup>, GERARDO FLOREZ MENÉNDEZ<sup>\*\*.\*\*\*</sup>, MARÍA-TERESA CORTÉS-TOMÁS<sup>\*\*\*\*</sup>, FRANCISCO SALVADOR PASCUAL PASTOR<sup>\*\*\*\*\*</sup>

<sup>\*</sup> Addictions Research Group at Universidad de Sevilla (ARGUS). Departamento de Personalidad, Evaluación y Tratamiento Psicológico. Universidad de Sevilla. Spain.

<sup>\*\*</sup> Centro de Investigación Biomédica en Red de Salud Mental (CIBERSAM). Oviedo. Spain.

<sup>\*\*\*</sup> Unidad de Conductas Adictivas, Complejo Hospitalario de Ourense, CIBERSAM, Ourense. Spain.

<sup>\*\*\*\*</sup> Grupo de investigación "Aspectos psicosociales del proceso adictivo (APPrAd). Departamento de Psicología Básica. Facultad de Psicología. Universitat de València. Spain.

<sup>\*\*\*\*\*</sup> Presidente Socidrogalcohol. Asesor de CAARFE. Investigador Grupo Prevengo UMH. Coordinador UCA-Alcoi. Grupo Ibero Ciência.

Recent years have witnessed an intense scientific debate in the field of addictions: is the joint presence of a substance use disorder (SUD) together with another mental disorder clinically important enough to be considered an entity in itself? Should this clinical scenario have a specific term? Is the use of the term dual pathology appropriate? What are the implications of this for the clinical care of people with addictions? This editorial aims to review the most recent scientific evidence and, above all, contribute constructively to the scientific debate on these issues.

### Dual Pathology: what is it?

Comorbidity between addictions and other mental health problems has in recent years been conceptualized by some researchers and clinicians as 'dual pathology,' a term also chosen by the World Psychiatric Association (WPA, n.d.). The term refers to the existence of a clinical entity that combines substance use disorder (SUD) with another mental disorder (depression, anxiety, bipolar disorder,

psychotic spectrum disorders, etc.). The label 'dual pathology' can also, although less frequently, refer to two individual diagnoses together (Lehman et al., 1989) or a SUD secondary to a mental disorder (Sáiz Martínez et al., 2014). The main arguments of those defending the use of this label for the presence of a SUD and another mental disorder are summarized below (Szerman et al., 2022).

The first such argument is based on the fact that the relationship between SUDs and other mental disorders have a statistical power that far exceeds mere chance and, therefore, the term comorbidity, which only indicates the joint presence of two disorders in one person, would not be specific enough (Krueger & Markon, 2006). Various epidemiological studies and clinical and general population samples (adult and/or adolescent) support this view (Cowlshaw & Hakes, 2015; Grant et al., 2015; Pereiro et al., 2013). Although results vary depending on the methodology used in each study, it can be stated that more than 50% of people diagnosed with SUD also have another mental disorder and vice versa (Compton et al., 2007; Cowlshaw & Hakes, 2015; Grant et al., 2015; Merikangas et al., 2010;

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### ■ Send correspondence to:

Sergio Fernández-Artamendi. Addictions Research Group at the University of Seville (ARGUS). Departamento de Personalidad, Evaluación y Tratamiento Psicológicos. Facultad de Psicología. C/ Camilo José Cela S/N (41018 Sevilla). Despacho S704. Email: sfartamendi@us.es

Pereiro et al., 2013; Szerman et al., 2022). Secondly, the prevalence of substance-induced mental disorders is very limited, and could therefore not explain the frequent co-occurrence of SUDs and other mental disorders on its own (Pereiro et al., 2013; Szerman et al., 2022). These authors further claim numerous studies have shown that in their evolution, many of these induced or secondary disorders were in fact primary. Moreover, substance-induced disorders share a pathophysiological basis and the same risk factors as their counterparts of primary origin (Pereiro et al., 2013; Szerman et al., 2022). Third, SUDs and other mental disorders share risk endophenotypes, such as impulsivity and emotional dysregulation (Szerman et al., 2022). Finally, the emphasis in a dual pathology perspective is placed on the fact that SUDs and other mental disorders have neurobiological bases in common since they share a genetic risk, and that toxic substances also impair the functioning of neurotransmission involved in the etiopathogenesis of other mental disorders (Szerman et al., 2022). This would explain why substance use disorders would favour the appearance of mental disorders and vice versa (Lev-Ran et al., 2013).

## Theoretical and empirical weaknesses of the “dual pathology” model

In general terms, the basis for the conceptualization of comorbidity between addictions and other mental health problems as ‘dual pathology’ is based on a high joint prevalence of both disorders, on the existence of shared risk factors and neurological disorders, and on the existence of a distinct clinical entity. From our perspective, these approaches have some weaknesses.

### About the concept of pathology

To begin with, we need to start with the concept of ‘pathology’ itself. Spain’s Royal National Academy of Medicine defines ‘pathology’ as the “*set of symptoms of a disease*” or, where appropriate, “*the area of medicine studying diseases*” (Real Academia Nacional de Medicina de España, n.d.), while also discouraging its use in specialized contexts as a synonym or ‘label’ for a disease. Moreover, the use of this term (‘pathology’) involves considering addiction as a brain disease and, therefore, the product of an impairment of neurological structures, ultimately seen as chronic. This view is based on a biological model that takes addiction to be a consequence of the impairment of different brain structures (Thompson et al., 2020), derived from the repeated use of addictive substances, which would generate a chronic disease (‘pathology’). This conception of addiction as a ‘brain disease’ would therefore be reductionist, to say the least. It is in line with other mental disorders being similarly considered brain diseases and, therefore, ultimately, a direct consequence of

the impairment of brain structures or neurotransmission mechanisms. Succinctly put, addiction is a consequence of the impairment of the reinforcement system (Volkow & Baler, 2019), in the same way that depression is a consequence of the impairment of serotonergic circuits (Albert et al., 2012), the latter being a hypothesis that lacks sufficient empirical support (Moncrieff et al. 2023).

This reductionist and biological view of addiction is at odds with existing scientific findings, has important theoretical weaknesses and poses a problem with practical and clinical implications. At a theoretical level, it equates addiction (and other mental problems) with diseases such as diabetes or hypertension (Heilig et al., 2021), with the biological factor prioritised over the social and psychological factors present at the origin of mental disorders in general, and in addictions in particular (Becoña, 2018). According to Heilig et al. (2021), given the undeniable neurobiological impairment present in addiction, it must be a brain disease. Taking a similar reductionist perspective, Room (2021) responds that, given that the social component is also undeniable in addiction, it could then equally well be a ‘social disease.’

Furthermore, the practical consequences also fail to match the empirical evidence. If it were a biological disorder, addiction would be subject to remission (that is, the reduction of symptoms for a prolonged period of time), but not to the disappearance of symptoms. However, research shows that ‘recovery’ is most common among people with addictive disorders, such as alcohol use disorder, even in the absence of treatment (Fan et al., 2019; Kelly et al., 2017). This recovery is defined as “an individualized, intentional, dynamic and relational process involving sustained efforts to improve wellness” (Ashford et al., 2019, page 5), a definition based on the process of change and a global (biopsychosocial) view of wellness in the different areas of people’s lives (Carballo, 2023). Finally, and in the particular case of addiction, conceptualizing it as a disease can even have a negative impact for users, contributing to the medicalization of the problem, stigma and worse prognosis for recovery (Trujols & Allende, 2018).

### On the specificity of the joint presentation of mental health and addiction problems

The ‘Dual Pathology’ concept assumes the coexistence of two different nosological ‘entities’ in the individual, as if they were two different, separate ‘diseases’ in the person’s brain. This approach further assumes that this coexistence of two nosological entities actually implies the existence of a third entity, a ‘disease’ that is qualitatively different from the sum of the other two. However, is this epidemiological and etiopathogenic relationship exclusive to SUDs or does it occur in all mental disorders? If this clinical phenomenon is common to all mental disorders, it would no longer be a special or particular situation, nor a specific entity.

Community epidemiological studies indicate that people with one mental disorder have greater than a 50% chance of having another (Plana-Ripoll et al., 2019). Furthermore, studies indicate that this relationship is not exclusive to SUDs, but rather a generalized phenomenon in all mental disorders (Plana-Ripoll et al., 2019). As ready examples, the presence in diagnostic manuals of conditions such as mixed anxious-depressive disorder, mixed personality disorder or schizoaffective disorder may be cited, underlining the very frequent clinical presentation of these comorbidities. Studies indicate that the comorbid presence of two or more mental disorders is the norm and not the exception reserved for SUDs (McGrath et al., 2020). In fact, the presence of a single mental disorder is a rare clinical situation (Caspi et al., 2020). These studies also point out that the relative risk of comorbidity appearing is independent of the temporal order in which mental disorders appear (McGrath et al., 2020; Plana-Ripoll et al., 2019), and that the transition of some disorders to others throughout patients' lives is very frequent (Caspi et al., 2020).

### **On the need for a specific 'diagnosis'**

The need for diagnoses in the field of clinical practice is indisputable for establishing screening criteria, case management, and the referral and application of specific interventions. Additionally, in certain health systems, such as the United States, financing for health interventions depends on clear diagnoses on which insurance companies can base their decisions. Therefore, at a pragmatic level, 'conceptual' debates such as the one addressed in this editorial can have various practical implications, applicable, of course, to the field of addictions (Heilig et al., 2021). Nevertheless, for a clear scientific debate, the evident need and usefulness of establishing clear diagnoses and nosological classifications must not be confused with the proper analysis of the nature of the problems we are addressing. In fact, not a single mental disorder has yet been established as a distinct entity (Haslam et al., 2012). In this context, there are currently various proposals for understanding and conceptualizing comorbidity, with dimensional and hierarchical perspectives, thus making the need for diagnosis redundant (e.g. Forbes et al., 2016). The only possible strategy for improving the treatment of mental health problems is to obtain the best fit between their conceptualization and the existing scientific evidence.

### **Common risk factors**

One of the bases of the dual pathology perspective is the existence of common neurobiological disorders in addictions and other mental health problems. Indeed, mental disorders present impairments in the neurotransmission systems of the brain, and the psychoactive effect of addictive substances usually works through these neurotransmission systems. However, it has not been shown that the presence

of a particular mental disorder exclusively favours the appearance of a SUD associated with a psychoactive agent which acts through the neurotransmission system impaired in said mental disorder. Nor has the reverse phenomenon been demonstrated, that a SUD favours the appearance of a mental disorder whose impaired neurotransmission system is exactly the one on which the substance exerts its psychoactive effect. The above-mentioned studies rather indicate a more non-specific correlation, seemingly linked to a common general vulnerability (Anttila et al., 2018; Caspi et al., 2020; Caspi & Moffitt, 2018; Compton et al., 2007; Grant et al., 2015; Lev-Ran et al., 2013; McGrath et al., 2020; Plana-Ripoll et al., 2019). Moreover, genetic studies indicate that all mental disorders, including substance use disorders, have a polygenic basis, meaning that they all share genetic risk factors (Smoller et al., 2019). Indeed, genetic studies contradict the current diagnostic paradigm based on categories, while once again supporting a dimensional distribution for all mental disorders, highlighting that this dimensional distribution includes the normality or absence of the disorder (Smoller et al., 2019). It is interesting that this shared polygenic risk is greater for mental disorders than for neurological disorders (Anttila et al., 2018). From a genetic point of view, the pathogenic process is shared for all mental disorders (Anttila et al., 2018).

With regard to environmental risk factors, it has also not been clearly demonstrated that there are factors which only influence the appearance of a single mental disorder or a specific combination of mental disorders (Arango et al., 2021). The most prominent environmental risk factors impair neurodevelopment in its earliest initial phases and are linked to a risk of the appearance of all psychopathology, although a single transdiagnostic environmental risk factor has not been identified (Arango et al., 2021).

These findings strengthen the idea of common etiopathogenic bases for all mental disorders, not only for SUDs with other mental disorders (McGrath et al., 2020; Plana-Ripoll et al., 2019).

## **Editorial proposal**

### **Biopsychosocial model and individual-centred approach**

Having reviewed all the scientific evidence, we conclude that comorbidity between SUDs and other mental disorders is not merely random, yet neither is it a unique and special clinical situation. Rather, it is part of a multi-comorbidity typical of mental disorders (Caspi et al., 2020; Caspi & Moffitt, 2018; Krueger & Markon, 2006; Plana-Ripoll et al., 2019). Therefore, comorbidity between addictions and other mental health problems must be conceptualized in at least the same way as coexistence between other mental health problems. Furthermore, the most appropriate and complete way to understand and conceptualize addiction

is on the basis of the biopsychosocial model (Engels, 1977; Becoña, 2018). Applying this model, the existence of mental problems must be understood as the product of the interaction of biological, psychological and social factors, without the need for the primary or necessary cause to be a biological disorder or brain disease. Therefore, returning to Room (2021), the restricted sense of addiction as a biological disease would be as valid (or invalid) as labelling it a 'social disease.' In this context, understanding the genesis and development of addictions and other mental disorders, as well as their possible comorbidity, must be undertaken from biopsychosocial models that cover the variety of elements involved. Saying that addiction is a 'biopsychosocial' problem is not an answer to the problem; however, it is an essential premise for properly framing the discussion. Thus, and as indicated above, addiction is a multi-causal health problem, the natural process of which, although subject to chronicity, is one of recovery, with or without treatment. This conceptualization of addiction, based on empirical evidence, requires an individualizing process of intervention based on each user's profile characteristics and their comorbidity.

## Concept

If a special term were to be applied to refer to this clinical situation highlighting an association beyond random comorbidity, whether it be "dual disorder" or "dual diagnosis" or "dual pathology" or "concurrent disorders", the term should be used to refer to any comorbid situation with any combination of mental disorders: for example, the presence of two SUDs, or two non-addictive mental disorders, or one SUD together with a non-addictive mental disorder. Moreover, this refers only to clinical situations in which the user presents just two disorders, since it is not unusual to find users in clinical settings presenting three or more disorders (McGrath et al., 2020; Plana-Ripoll et al., 2019).

Which term would be most appropriate? 'Dual pathology' is unsuitable for the reasons discussed above. Mental disorders are not considered diseases even in current diagnostic manuals due to the limited diagnostic capacity currently available to differentiate them (McGrath et al., 2020; Plana-Ripoll et al., 2019). The World Health Organization's term 'dual diagnosis', which refers to this non-random multi-comorbidity (Szerman et al., 2022), would probably be appropriate. 'Dual disorder' could also serve, provided that its use goes beyond the binomial SUD – non-addictive mental disorder. However, the use of 'dual diagnosis/ disorder' would fail to include the very broad range of people with mental health problems and addictions who do not meet the criteria established by the main manuals, without at the same time eliminating the uneasiness related to the term. That is why, perhaps, there

seems to be a certain consensus in the scientific community regarding the use of the term 'comorbidity' to refer to the presence of various mental problems or disorders, either with or without addictions. A quick search in the PubMed database (without any claim to being exhaustive) for articles with 'dual pathology' in the title (and introducing various addiction-related keywords as additional search options: substance use OR substance use disorder) returned 338 publications. The same search with the term 'comorbidity', limited by the same keywords in the field, returned 23,009.

## Dimensional/transdiagnostic perspective

Regarding the at-risk endophenotypes referred to above, studies carried out in the adult population, but also those studying the development of endophenotypes from childhood/adolescence to adulthood, indicate the presence of four dimensions which are highly intercorrelated and present dimensionally in all mental disorders: impulsivity, anxiety, fear and thought disorder (Caspi et al., 2020; Caspi & Moffitt, 2018; Krueger & Markon, 2006; Lahey et al., 2012). This high correlation has led some authors to suggest the existence of a single psychopathological dimension (Caspi et al., 2020; Caspi & Moffitt, 2018; Lahey et al., 2012).

From this perspective, it is understood that mental health symptoms present dimensionally (from normality to clinical problem) and not categorically, with certain symptoms presenting more commonly together with other specific symptoms, by maintaining some type of relationship in their origin or maintenance. Comorbidity between addictions (SUD) and other mental health problems or disorders would thus be of the same nature as the other comorbidities (among other mental health problems); these are nothing more than a joint expression of a series of symptoms belonging to different pre-established nosological entities. Taking into account the multitude of biological, psychological and social processes involved (impairments in the dopaminergic system, decision making, impulsivity, learning and conditioning, accessibility, etc.) in the development of an addiction (West & Brown, 2013), it is not surprising that SUD symptoms can occur together with those of other mental health disorders such as depression, bipolar disorder or psychotic spectrum disorders, among others. In fact, in the debate on the 'central' or defining elements of what an addiction is, elements as diverse as 'dysregulation of choice' (Strain, 2022) or compulsivity (Lüscher et al., 2020) have been proposed, both of which are present to different extents in various mental disorders. Furthermore, and as previously mentioned, addictive behaviours can be a cause but also a consequence of other mental health problems (National Institute on Drug Abuse, 2020), and the development of this comorbidity cannot be

understood without an interactive relationship between all the symptoms of both diagnoses.

## Practical implications

As we have seen, the proposals for the conceptualization of comorbidity as an additional and differential nosological entity not only go against the principal evidence currently available in the field of psychopathology (Kotov et al., 2017; Cuthbert, 2014; Krueger & Markon, 2021), but also result in reductionism and can contribute to the stigma of users with addictions (Trujols & Allende, 2018). The use of concepts such as pathology or illness in the field of mental health problems does not necessarily help to reduce associated stigma. On the other hand, despite the multimorbidity present in all mental disorders, it could be useful for mental health professionals to know about the very frequent, but not exceptional, relationship between SUDs and other mental disorders, if these diagnostic binomials had a specific treatment. Unfortunately, research carried out so far, which is rather scarce for some of these comorbidities, has not shown that there are specific treatments for this clinical situation (Arranz et al., 2022; Cunill et al., 2022; González-Pinto et al., 2022; Sáiz et al., 2022; Torrens et al., 2022). As a general rule, the few clinical trials carried out only allow us to advise treating each disorder separately and with treatments that have proven effective for said disorder alone; the evidence of their effectiveness in comorbidity situations is weak in most cases (Arranz et al., 2022; Cunill et al., 2022; González-Pinto et al., 2022; Sáiz et al., 2022; Torrens et al., 2022). Therefore, the use of a specific treatment cannot be invoked to claim the need for a special term to refer to dual diagnoses between SUDs and other non-addictive mental disorders.

In this context, the dual pathology label does not refer to any specific and delimited nosological entity or brain disease that would help clarify the intervention process, but rather to a wide range of mental health problems commonly present in users with SUDs (already highly heterogeneous) that may include, for example, the phenomenology present in an alcohol use disorder with major depression but also a cannabis use disorder together with a psychotic spectrum disorder. Furthermore, its usefulness for users has not been demonstrated either on a personal or clinical level given that it does not offer additional solid explanations to patients nor specific treatment guidelines. On the contrary, the dual pathology label resurrects categorical nosological classifications without offering any specific practical contribution.

Ultimately, this conceptual debate means that the treatment of addictions and mental health problems must stop revolving around diagnostic categorization, the concept of 'disease' and the idea of 'chronicity' by necessity; it must instead incorporate a greater functional perspective,

both in understanding and addressing the problem, from a dimensional and individualized standpoint.

## Conclusions

This editorial aimed to deepen the existing debate around the concept of dual pathology and its implications for the understanding of comorbidity and care for users with addictions. The use of the label 'dual pathology' is not based on empirical evidence, it resorts to reductionist concepts lacking a scientific basis such as that of addiction as a brain disease, and it does not offer best practices at a healthcare or clinical level for patients. Perhaps the urgency and need to coin this term are not so much linked to the etiopathogenesis, diagnosis, treatment and evolution of these disorders when they appear together in the patients, but are rather more likely to be a result of the stress generated by an aberrant healthcare situation occurring, with different intensity and presentation, in the treatment of mental disorders in our country. The existence of parallel networks for the treatment of SUDs on the one hand, and the rest of the mental disorders on the other, has given rise to two care networks unrelated to each other, focused on the diagnosis and treatment of one type of disorder and ignoring those they do not consider themselves competent to deal with. This generates nihilistic treatment situations, where neither network assumes responsibility for patients with this comorbidity, considering them to be beyond their remit and believing that their care is the responsibility of the other parallel network. What's more, the same patient can be treated in more than one healthcare network for each of their diagnoses, without adequate integration between centres. Furthermore, this attention focused on the pathology from a diagnostic point of view often ignores the necessary individualization of treatment, not to mention the social and community variables involved in the origin and recovery of addictions.

Notwithstanding the above, is the best solution for this healthcare phenomenon to agree on a term (new diagnosis) to describe the clinical situation which gains acceptance by both healthcare networks? Or rather, should real integration of both healthcare networks perhaps be achieved in order to focus on mental healthcare and the promotion of wellbeing as a whole with an integrated and multidisciplinary perspective, focused on the individual and with a community perspective, and not so much on diagnosis? For this approach to work, public health care systems still have a considerable task ahead involving the incorporation of psychology professionals into their services as well as the greater integration of said community approach. Ultimately, what seems clear is that the treatment of addictions, comorbidity, and also the population's mental health problems, may require a reconceptualization of health services that addresses these needs.

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